

IN THE CLAIMS:

Claims 28 through 47 were previously cancelled. Claim 17 has been amended herein. All of the pending claims 1 through 27 are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

Listing of Claims:

1. (Previously presented) A video imaging system, comprising:
a field emission array including:
 - a p-type substrate comprising an image detection surface;
 - an n-well recessed in the p-type substrate;
 - a diffusion region between the p-type substrate and the n-well;
 - at least one emitter tip disposed in communication with the n-well;
 - a capacitor, a first side of which is in communication with the n-well;
 - a baseline potential transistor in communication with a second side of the capacitor; and
 - a signal transmission transistor in communication with the second side of the capacitor;an image signal detector associated with the signal transmission transistor; and
an extraction grid disposed over the field emission array and including at least one aperture therethrough located substantially over the at least one emitter tip.
2. (Previously presented) The video imaging system of claim 1, further comprising a cathodo-luminescent display disposed substantially parallel to and spaced apart from the extraction grid and including at least one display pixel corresponding to the at least one emitter tip.
3. (Previously presented) The video imaging system of claim 1, wherein the baseline potential transistor and the signal transmission transistor share a common drain.

4. (Previously presented) The video imaging system of claim 1, wherein a distance between the image detection surface and the n-well facilitates detection of electromagnetic radiation of a near infrared wavelength.
5. (Previously presented) The video imaging system of claim 1, wherein a distance between the image detection surface and the n-well facilitates detection of electromagnetic radiation of a visible wavelength.
6. (Previously presented) The video imaging system of claim 1, wherein the image signal detector is in communication with a source node of the signal transmission transistor.
7. (Previously presented) The video imaging system of claim 1, further comprising a shutter component.
8. (Previously presented) The video imaging system of claim 7, wherein the shutter component is configured to prevent electromagnetic radiation from impinging the n-well.
9. (Previously presented) The video imaging system of claim 1, wherein the diffusion region is located proximate to the image detection surface and further comprising a layer of detection enhancement material adjacent the image detection surface.
10. (Previously presented) The video imaging system of claim 9, wherein the detection enhancement material comprises a platinum silicide.
11. (Previously presented) The video imaging system of claim 1, wherein the p-type substrate and the n-well each comprise a detection enhancement material.

12. (Previously presented) The video imaging system of claim 11, wherein the detection enhancement material comprises a mercury-cadmium-tellurium alloy.

13. (Previously presented) An image detection apparatus, comprising:
a p-type substrate comprising an emission surface, an array of n-type wells disposed in the p-type substrate substantially along a plane proximate the emission surface, a p-n junction between the p-type substrate and each n-well of the array of n-type wells, and an image detection surface opposite the emission surface;
an array of emission pixels, each comprising at least one emitter tip protruding from the emission surface and in communication with a corresponding n-well of the array of n-type wells;
a capacitor in communication with selected n-wells of the array of n-type wells;
a signal transmission transistor in communication with the capacitor;
a baseline potential transistor in communication with the capacitor; and
an image signal detector in communication with the signal transmission transistor.

14. (Previously presented) The apparatus of claim 13, wherein the signal transmission transistor and the baseline potential transistor share a drain node.

15. (Previously presented) The apparatus of claim 13, wherein the image signal detector communicates with a source node of the signal transmission transistor.

16. (Original) The apparatus of claim 13, further comprising a shutter.

17. (Currently amended) The apparatus of claim 16, wherein the shutter prevents electromagnetic radiation from penetrating selected ~~n-well~~ n-wells of the array of n-type wells.

18. (Previously presented) The apparatus of claim 16, wherein the shutter is positionable over a selected region of the image detection surface.

19. (Previously presented) The apparatus of claim 13, wherein a distance between the image detection surface and an n-well of the array of n-type wells facilitates impingement of the p-n junction by electromagnetic radiation of an infrared or a near infrared wavelength.

20. (Previously presented) The apparatus of claim 13, wherein a distance between the image detection surface and an n-well of the array of n-wells facilitates impingement of the p-n junction by electromagnetic radiation of a visible wavelength.

21. (Previously presented) The apparatus of claim 13, further comprising a display disposed adjacent, substantially parallel to, and spaced apart from the emission surface.

22. (Previously presented) The apparatus of claim 21, wherein the display comprises an array of display pixels, each display pixel of which corresponds substantially to at least one emission pixel of the array of emission pixels.

23. (Previously presented) The apparatus of claim 21, wherein the display comprises a cathodo-luminescent display.

24. (Previously presented) The apparatus of claim 13, wherein the p-n junction is located proximate to the image detection surface, the apparatus further comprising a layer of detection enhancement material adjacent the image detection surface.

25. (Previously presented) The apparatus of claim 24, wherein the detection enhancement material comprises a platinum silicide.

26. (Previously presented) The apparatus of claim 13, the p-type substrate and the array of n-type wells each comprise a detection enhancement material.

27. (Previously presented) The apparatus of claim 26, wherein the detection enhancement material comprises a mercury-cadmium-tellurium alloy.

28-47. (Cancelled)